

Efficacy of Evidence Based Care on Care Quality of Mother and Infant in 3 Teaching Hospitals: A Protocol

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ARTICLE INFO	ABSTRACT
<p>Article type: Protocol</p> <hr/> <p>Article history: Received: 28- Nov-2013 Accepted: 14- Dec-2013</p> <hr/> <p>Keywords: Checklist Childbirth Evidence based practice</p>	<p>Introduction: Reducing infant mortality rate during delivery is a priority in the world. Even with the existing activities that take place in hospitals, due to lack of simple and effective methods, this mortality reduction trend is slow. The objects of this study were to apply and investigate the effects of WHO evidence-based guidelines for safe delivery on the quality of maternal and neonatal support.</p> <p>Materials and Methods: This is a semi-experimental study with external control. After forward and backward translation of WHO safe childbirth checklist, in an expert meeting irrelevant/infeasible items in the checklist were omitted or modified. Personnel performance on checklist items was evaluated by researchers who were present in the whole period of mother and neonate hospitalization in two phases. Intervention was done in two hospitals and one hospital was considered as control. At first, the instructions were provided for all the collaborating personnel in forms of pamphlets, posters and booklets and after two weeks second phase began by arranging an educational session for personnel. The data of these two phases is being compared.</p> <p>Discussion: If our prior assumption be proved, we anticipate improvements in some items of checklist .Some of these items are skin contact, breast feeding rate in first hour postpartum, hand hygiene, and mother's knowledge regarding the parturition during the time in which they are hospitalized together with a decrease in episiotomy infection/dehiscence prevalence. These changes can be regarded as an overall promotion in maternal/neonatal support.</p>

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Introduction

Reducing infant mortality rate during delivery is a global priority. Even with the existing activities that take place in hospitals, due to a lack of simple, effective, and accessible methods, this mortality reduction trend is slow(1). Poor quality of care in hospitals is known as a major influencing factor in the injuries associated with childbirth (2-4). According to World Health Organization (WHO) statistics, in 2010, 287,000 women died during pregnancy or delivery, three million infants died in the first month, and there were 2.6 million still births. 800 women die daily due to pregnancy or delivery complications. In general, two million deaths (mother, infant, or still births) occur during delivery or shortly afterwards (5). A great deal of these deaths occurs in developing countries.

According to WHO statistics, the mother mortality

rate in Iran is 15-30 (average 21), 20 in Turkey, 56 in Brazil, 12 in Canada, 21 in the USA, 8 in France in every 100,000 births (6). The infant mortality rate according to WHO statistics in 2011 in Iran was 14, nine in Turkey, ten in Brazil, four in Canada, four in the USA, two in France, six in Russia in every thousand births (7). Studies show that the improvement of quality care during and after birth can save both the mother and infant (8).

In recent years, the use of a safety or medical checklist was recommended as a tool to improve the care and outcome of patients (9). These checklists were used as a preventive method of forgetting the key activities necessary during delivery. The majority of studies showed that the implementation of these checklists significantly advanced patient safety (10).

The success of implementing these checklists depends on personnel, training, outcome measurement, and environmental specifications (10). Some studies showed no difference in whether or not these checklists were used (10). Despite the wide range of success rate in checklist-based processes, Checklist-based approach in managing the confinement process seems a rational choice for a number of reasons: Major causes of maternal prenatal mortality have been identified and can be prevented. In fact, most of these deaths tend to occur in an anticipated time (intrapartum till the first 24 hours postpartum) (11). International evidence-based clinical guidelines have been devised and provide the optimum approach in this regards.

Although suggested interventions are efficient, cheap, and simple, performing all these recommended tasks with correct timing for all the parturient in the stressful atmosphere of the delivery rooms is anything but an easy task (1). Regarding these stated facts, WHO commenced a checklist-based safe childbirth program which aimed at introducing simple, inexpensive, rankable and extensively testable measures. One of the most important development criteria and gold standards regarding health-care are maternal and neonatal mortality rates which are extensively looked after by WHO. Where preterm delivery, intrauterine growth restriction, and fetal anomalies constitute the major causes of neonatal mortality, gestational hypertension and infections comprise the main causes of maternal mortality (12).

Considering the importance of improving health care in terms of reducing the maternal and neonatal mortality rates and lack of similar study in our region, we carried out the study in Ommul-banin, Ghaem and Imam Reza Hospitals of Mashhad University of Medical Sciences and mean to localize, apply and investigate the effects of WHO evidence-based guidelines for safe delivery on the quality of maternal and neonatal support. The limitations faced by the researchers in checklist application in therapeutic environments will be discussed later on.

Materials and Methods

This study has a semi-experimental design with external control. Firstly, the checklist was translated with the same method recommended by the WHO: Two English language experts, familiar with study concepts and aims, independently carried out the task of translating the original (English) checklist. Inconsistencies were resolved later on by shared meetings between the translation group and the research group (Forward Translation). We put strong emphasis on the transcript justifiability and reach to make it easier for further evaluations. In the next step, the Persian exemplar was translated back to English and was compared to the original (English) checklist by experts of English/Persian who had an acceptable understanding of the study and any remaining contradictions were resolved (backward translation and

comparison). In a meeting attended by gynecology and neonatology staffs (three gynecology staff members of Mashhad University of Medical Sciences from Ghaem, Imam Reza, and Ommul-banin hospitals, and two neonatologists), all selected using purposive sampling method, safe childbirth checklist and the main study goals/aims were explained. Further discussions took place to identify and omit the irrelevant/infeasible items. Decisions were made based on the consensus achieved in the meeting. To have a proper evaluation of the mothers' knowledge, a questionnaire with related items to the checklist was designed, the justifiability of which was investigated in the aforementioned meeting.

Chronbach alpha was calculated and confirmed the reliability of checklist.

Moving right along, 20 volunteer students of midwifery, all familiar with confinement management (6-7 for each hospital) were selected. Classes and meetings were organized to explain safe childbirth checklist and the study goals. This group was presented to the wards and covered every delivery in all work-shifts as observers: Two-week period was considered to familiarize the students with checklist contents and also to refine inquirers' evaluation skills and to resolve any possible obscurities. Education of all students was conducted by one of researchers.

Two staffs were chosen and presented to the pilot hospitals as study supervisors. Information gathered by the supervisors was reviewed once every three days and any malperformance was taken care of.

During the project, the knowledge assessment forms were filled in by mothers in the presence of researchers.

Cases of mother's referral as outpatients for either episiotomy dehiscence or infection for up to a month after hospitalization were recorded. Also, the patients were asked for signs and symptoms of dehiscence or infection in the follow-up phone calls carried out after one month of discharge.

Intervention: In the second phase, the instructions were provided for all the collaborating personnel in forms of pamphlets, posters and booklets. Personnel performance on checklist items was evaluated by the researchers for an additional two weeks. At the end of these two weeks, important instructions and notes on the checklist were provided for the collaborating personnel in a two-hour class (the residents had a separate class from the midwives /nurses). The clinical guidelines were taught by the same instructors and then educational maternal/neonatal support booklet was provided for the labor/gynecology wards.

Studied Population: All the births occurred in Ommul-banin, Imam Reza, and Ghaem hospitals (from the time of mother's referral for hospitalization till discharge) since the beginning of the project (July 2013) to its end (end of September).

Sample Size: It must be mentioned that an average of 1000-1100 births occur each month in the collaborating hospitals. The sample size concludes all of child-birth cases in three hospitals in the study period of time.

Afterward, Imam Reza hospital would be considered as an external control group with no further interventions.

Inclusion Criteria: All the cases of births in the three aforementioned hospitals, both C/S and NVDs, regardless of the outcome (stillbirth, etc.)

Exclusion Criteria:

- All the cases with checklist completion below 50%
- Abortions (20 Weeks of gestation and earlier)

Data Gathering Method: Field data collection

Data Collection Tools: The data will be collected using questionnaire and observation (checklist items) by the researchers.

Statistical Data Analysis: Up to the time of this article publication, above steps have been accomplished and the research team are working on data analysis. Data will be handled using SPSS v_{11.5}. Descriptive statistical analysis and measures of central tendency such as mean and standard deviation will be used.

Kolmogorov-Smirnov test will be applied to check if the quantitative variables follow a normal distribution pattern. T-test is the analysis of choice to compare the two groups in quantitative variables with normal distribution, and nonparametric tests such as Mann-Whitney will be used to handle the quantitative variables without normal distributions and qualitative variables. In all these cases $\alpha=0.05$ and statistical power=80.

Results

Mothers' level of knowledge, breast feeding in the first postpartum hour, partograph plotting, and hand hygiene are regarded as the initial outcomes. It must be noted that we do not intend to investigate the ultimate effects of evidence-based support on maternal mortality rate. Quality of maternal/neonatal support including episiotomy dehiscence and infections are regarded as final outcomes in this study.

Discussion

The present study aims to assay the effects of direct and indirect evidence-based support related instructions on maternal/neonatal support quality in different aspects. It has a semi-experimental design (before and

after) and thus shares the limitations seen in other studies with this very design. Accomplishing the project aim hinges on correct evaluation of supports in each of the 4 phases of mother's and neonate's hospitalization which has been mentioned in the foresaid checklist. This evaluation must not interfere with the routine personnel performances. If our prior assumption be proved, we anticipate improvements in skin contact, breast feeding rate in first hour postpartum, hand hygiene, and mother's knowledge regarding the parturition during the time in which they are hospitalized together with a decrease in episiotomy infection/dehiscence prevalence, which can be regarded as an overall promotion in maternal/neonatal support.

Some further investigations on certain parameters such as partograph plotting, Magnesium Sulfate and antibiotic administration, and postpartum homeostasis will be carried out, as well. These may indicate the necessity of taking measures in certain fields.

Since HIV is not endemic in Iran, screening is reserved only for mothers with high risk of contracting the disease. This risk evaluation is performed at the beginning of our project for all of our subjects in the three hospitals. Again, since this is the first study of its kind, we cannot provide any firm predictions.

The three collaborating hospitals are educational/referral centers (Ommul-banin is a women's hospital and the remaining two are general hospitals) and we do not expect any outgoing referral from these medical centers. There are some limitations for the presence of mothers' partners during hospitalization and if needed instructions are provided properly, partners' presence will probably not increase.

Maintaining hand hygiene in health-care systems is a must to prevent germ transmission. There is a need for education in this field as well as measures to promote the level of personnel's organizational culture.

Although the few classes incorporated in this study do not seem to be of significant help in improving hand hygiene, there may still act as some sort of an emphasis and reminder. Not any other major differences with current condition of university hospitals can be expected.

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